

【CLAIMS】**【Claim 1】**

A magnesium titanate implant, comprising:

- an implant body containing titanium or a titanium alloy; and
- 5 a magnesium titanate oxide film formed on the surface of the body.

【Claim 2】

The magnesium titanate implant as set forth in claim 1, wherein the magnesium titanate oxide film is prepared in a single or mixed solution containing magnesium by low voltage dielectric breakdown anodic oxidation.

10 【Claim 3】

The magnesium titanate implant as set forth in claim 1 or 2, wherein the magnesium titanate oxide film contains 6 to 26% of titanium, 51 to 71% of oxygen and 1.8 to 32% of magnesium, as main ingredients.

【Claim 4】

- 15 The magnesium titanate implant as set forth in claim 1 or 2, wherein the magnesium titanate oxide film has a bilayer structure including an upper porous layer and a lower barrier layer.

【Claim 5】

- 20 The magnesium titanate implant as set forth in claim 1 or 2, wherein the magnesium titanate oxide film has a thickness of 300 nm to 30 μ m.

【Claim 6】

The magnesium titanate implant as set forth in claim 5, wherein the magnesium titanate oxide film has a thickness of 500 nm to 10 μ m.

【Claim 7】

- 25 A process for preparing a magnesium titanate oxide film implant, comprising:
 - irradiating UV light on an implant body made of titanium or a titanium alloy in distilled water for more than 2 hours;
 - dipping the UV light-irradiated implant body in an electrolyte solution containing magnesium; and
 - 30 coating a magnesium titanate oxide film on the dipped implant body by anodic oxidation at a voltage of 60 to 500V.

【Claim 8】

The process as set forth in claim 7, wherein the electrolyte solution is a single or mixed solution containing magnesium.

【Claim 9】

- 5 The process as set forth in claim 7 or 8, wherein the electrolyte solution has a concentration ranging from 0.01M to 1.0M.

【Claim 10】

The process as set forth in claim 7 or 8, wherein the electrolyte solution has a pH of 3.0 to 12.5.

- 10 **【Claim 11】**

The process as set forth in claim 7 or 8, wherein the current density for performing the anodic oxidation is within the range of 30 to 4000 mA/cm².

AMENDED CLAIMS

[received by the International Bureau on 30 June 2005 (30.06.2005);
original claims 1 and 3-5 amended; original claim 2 cancelled;
remaining claims unchanged (2 pages)]

【CLAIMS】**【Claim 1】**

A magnesium titanate implant, comprising:

an implant body containing titanium or a titanium alloy; and

5. a magnesium titanate oxide film formed on the surface of the said implant body in a single or mixed solution containing magnesium by low voltage dielectric breakdown anodic oxidation.

【Claim 3】

- 10 The magnesium titanate implant as set forth in claim 1, wherein the magnesium titanate oxide film contains 6 to 26% of titanium, 51 to 71% of oxygen and 1.8 to 32% of magnesium, as main ingredients.

【Claim 4】

- 15 The magnesium titanate implant as set forth in claim 1, wherein the magnesium titanate oxide film has a bilayer structure including an upper porous layer and a lower barrier layer.

【Claim 5】

The magnesium titanate implant as set forth in claim 1, wherein the magnesium titanate oxide film has a thickness of 300 nm to 30 μ m.

【Claim 6】

- 20 The magnesium titanate implant as set forth in claim 5, wherein the magnesium titanate oxide film has a thickness of 500 nm to 10 μ m.

【Claim 7】

A process for preparing a magnesium titanate oxide film implant, comprising:

- 25 irradiating UV light on an implant body made of titanium or a titanium alloy in distilled water for more than 2 hours;

dipping the UV light-irradiated implant body in an electrolyte solution containing magnesium; and

coating a magnesium titanate oxide film on the dipped implant body by anodic oxidation at a voltage of 60 to 500V.

- 30 **【Claim 8】**

The process as set forth in claim 7, wherein the electrolyte solution is a single or mixed solution containing magnesium.

【Claim 9】

5 The process as set forth in claim 7 or 8, wherein the electrolyte solution has a concentration ranging from 0.01M to 1.0M.

【Claim 10】

The process as set forth in claim 7 or 8, wherein the electrolyte solution has a pH of 3.0 to 12.5.

【Claim 11】

10 The process as set forth in claim 7 or 8, wherein the current density for performing the anodic oxidation is within the range of 30 to 4000 mA/cm².